Ph.D. Registration

Synopsis

GEOMORPHIC CHARACTERISTICS AND THEIR IMPACT ON LAND-USE PATTERN IN BRAHMANI RIVER BASIN, JHARKHAND AND WESTBENGAL

Name of Research Scholar: Rupen Mal

Name of Supervisor: Prof. V.C. Jha

Department of Geography

Visva-Bharati,Santiniketan

Introduction:-

River is one of the major and most importantagentof process morphology. River has great contribution in geomorphological as well as regional land use pattern. River not only affects the morphological processes but also it has large impact on land use pattern and its basin area. Brahmani River is one of the important river flows in both the state of Jharkhand and West-Bengal. The basin area of Brahmani River covers with large number of tributaries and distributaries.

In this river basin area a diverse geomorphological phenomena can be seen at upper, middle and lower catchment area. This river is also characterized by prominent flood character and on the basin of the flood status as well as on the basis of river morphological character. Land use pattern of the Brahmani river basin are changeable in upper, middle and lower catchment area. So this work will involve exploring the spatio-temporal changes of morphological character in Brahmani river basin and spatio-temporal dynamicity of land use pattern in relation to morphology of river basin.

Objective:-

i) To analyse the geomorphic process of the basin

ii) To find out erosional and deposional characteristics in the study area.

iii) To assess morphometric characteristics of river basin.

iv) To evaluate the spatio- temporal change of land use pattern in different tributary catchments of the river basin.

v) To evaluate the relational analysis of geomorphic characteristics of basin and changing land use pattern.

vi) To suggest developmental plans for sustainable land management of the study area.

Rupen Mal

अध्यापक / Professor
भूगोल विभाग / Department of Geography
विश्वभारती / Visva-Bharati
शान्तिनिकेतन ७३१२३५ / Santiniketan-731235

Methodology:-

To full the objectives the research would like to adopt some traditional surveying methods along with some technological aids to make this work scientific, appropriate and valuable. So, the study will follow the following methodology-

a) In pre-field session topographical map, geological map of geological survey of India, climatic data of Indian meteorological station, planning map and numerous literatures are to be collected and a base map will be prepared.
b) In field session physical data, soil data, and land use data will be collected.
c) In post field session morphological characteristics, climatic analysis and various statistical analysis will be worked out to understand and represent the actual objectives of the work. Computer technology will be applied in cartographic works, large calculation, data analysis, empirical equation and estimations etc.

Study Area:-

The study area is located in within Jharkhand and West Bengal states in India. The study area is about1163.69 sq.km. The basin area extends from 24°09′24′′N. to 24°29′31′′N. latitudes and 87°17′39′′ E. to 88°00′58′′E. longitudes .The source of Brahmani River is Dudhwa hill (Dakodiha Village) in Jharkhand and mouth is Dwarka River in Murshidabad district in Westbengal. This River flows through the district of Santhal Pargana in Jharkhand and Birbhum, Murshidabad districts in Westbengal. The Brahmani River is flowing from source to mouth in the direction of west to east side. The river basin includes the topographical maps such as -73P/7, 73P/8, 73P/11, 73P/12, 73P/15, 73P/16 and 78D/4.

Tentative chapters:-

The Research work has been divided into the following tentative chapters:-

Chapter –I

Introduction: - This chapter will include conceptual framework, previous study, location of the study area, objectives, importance of the work and methodology.

Chapter –II

Physical and cultural background: -This chapter will deals with physiographic, geology, climate, drainage, soil, and natural vegetation.

Chapter –III

Climate and Geomorphic processes operating in the basin:-

This chapter will include climatic characteristics and Erosional characteristics of the basin.

Chapter –IV

Morphometric analysis of river basin:-

This chapter will evaluate the drainage basin linear, areal and relief properti

(A)Linear properties: - stream ordering, law of stream numbers, strea stream length, length ratio and law of stream length, bifurcation ratio, meander properties, length of overland flow, stream junction angels.

(B)Areal properties: - Geometry of basin shape, area ratio, law of b frequency, drainage density, drainage texture.

(C)Relief properties: - It will include two parts such as –i) Hypsometr height curve, percentage hypsometric curve, hypsometric integral and ii) Al

Chapter –V

Relief and Drainage Analysis:-

This chapter will deals with Absolute relief, Relative relief, Dissection in curve, Drainage frequency, Drainage density and Slope.

Chapter –VI

Basin Morphology: - It will include three parts i.e.-

i) Landscape profiles: serial profile, superimposed profile, composite pı profile.

ii) Valley forms: Cross profile, Longitudinal profile.

iii) Morphological characteristics of the river basin.

Chapter –VII

Land-use analysis:- It deals with existing land use pattern, spatio-temporal changing land use pattern and relational analysis of geomorphic patterns of basin and changing land use pattern, land use analysis.

Chapter –VIII

This chapter will include **suggestions and recommendations.**

Conclusion

Bibliography

Practical Utility:

The present study will provide important information which will be applicable to the study of Brahmani river basin. The study of "Geomorphic characteristics and their impact on land-use pattern in Brahmani river basin, Jharkhand-West bengal" has immense importance or practical utility to the academician, planner, and local people.

To Academician:

It will be provide knowledge about Brahmani river basin to the academician. It will also provide knowledge about evolution of geomorphic characteristics and land use planning.

To planner:

The planners can use this study as data base for planning. This scientific analysis will provide knowledge to the planner about geomorphic characteristics and land use patterns of this river basin.

To local people:

The common people can get idea about river created geomorphic features and land use planning. They will get some benefit from the river as various economic activities.

13/7/2018

Rupen Mal

अध्यापक / Professor
भूगोल विभाग / Department of Geography
विश्वभारती / Visva-Bharati
शान्तिनिकेतन ७३१२३५ / Santiniketan-731235